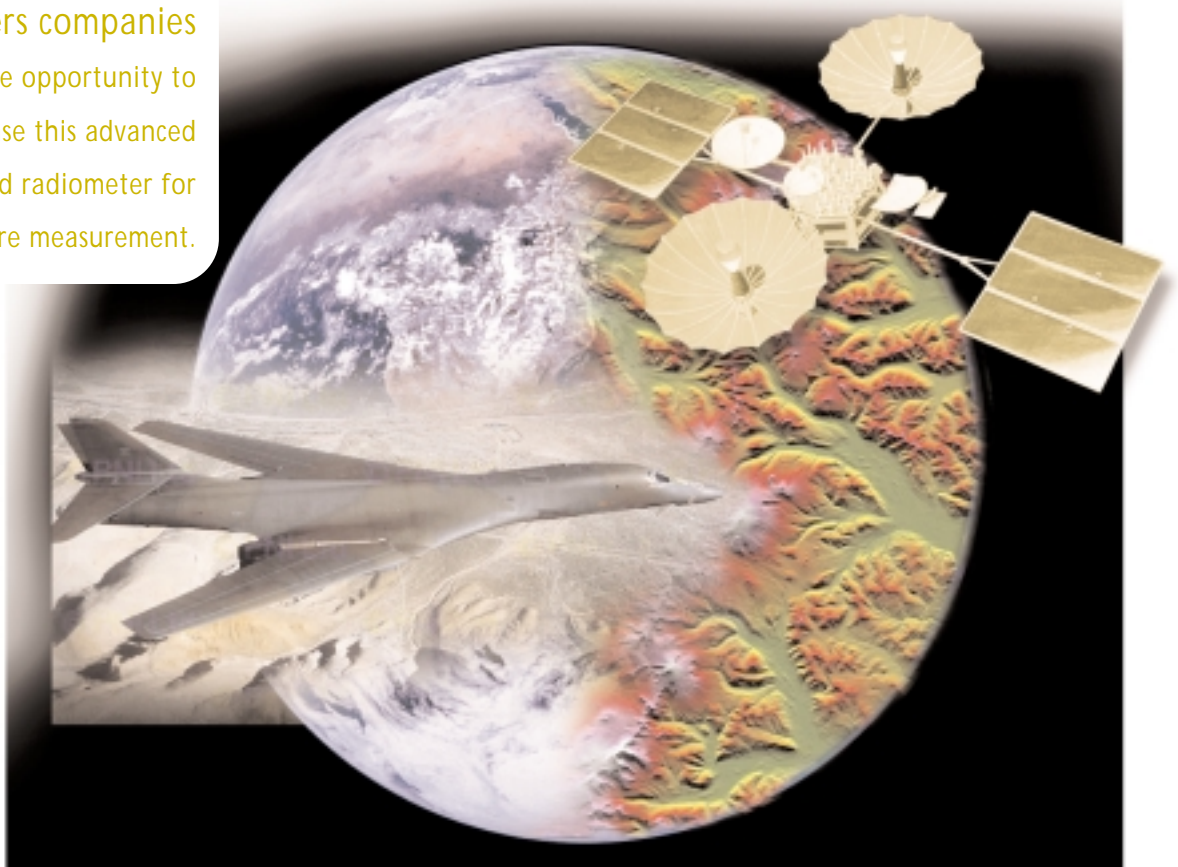


High-accuracy, self-calibrating
Radiant Temperature Nulling Radiometer

NASA offers companies the opportunity to license this advanced infrared radiometer for temperature measurement.



Developed at NASA Stennis Space Center, the radiant temperature nulling radiometer provides high-accuracy, self-calibrating temperature measurement. NASA Stennis' enhanced technology offers significant advantages over current infrared (IR) radiometers that often are imprecise and costly to operate. These advantages include high thermal resolution and the elimination of drifts, offset gains, and emissivity errors using a single black body. The improved accuracy and operation cost offered by this technology can benefit numerous commercial IR radiometer applications.

Benefits

- **Easy to use** – Small, noncontact temperature measurement
- **High accuracy and resolution** – Thermal accuracy better than 0.1 kelvin with resolution of several millikelvin
- **Self-calibrating** – Single black body calibration that allows for correction of offsets and gains
- **Efficient** – Low-power, non-cooled operation



National
Aeronautics and
Space
Administration



The Technology

NASA Stennis Space Center has developed a low-power radiant temperature nulling radiometer with unique self-calibrating design features to improve the accuracy, resolution, and operation cost of standard infrared (IR) radiometers. Unlike current IR radiometers, this technology removes any drifts or offset gains that can affect the calibration of the instrument, using only one black body source for calibration. This feature helps to improve accuracy. NASA Stennis' advanced IR radiometer also reduces emissivity errors by removing non-source radiation from the measurement, further improving accuracy.

NASA Stennis' radiant temperature nulling radiometer can be used in temperature measurement applications in the long-wave infrared, (LWIR) 8- to 12-micron region. In addition, this technology can be integrated easily into existing IR radiometers.

Commercial Opportunity

The radiant temperature nulling radiometer is part of NASA's technology transfer program. This program seeks to stimulate commercial use of NASA-developed technologies. NASA has applied for patent protection for the radiometer, and prototypes are under development. NASA invites companies to consider licensing this technology for use in commercial applications.

Commercial Applications

Process control

- Chemical/petrochemical
- Power generation
- Aerospace
- Metals

Research

- Satellite and aerial remote sensor calibration
- Global warming

For More Information

If you are interested in pursuing commercialization of this technology or if you want more information, please contact

Commercial Technology Program

NASA John C. Stennis Space Center

Phone: 228.688.1929

E-mail: technology@ssc.nasa.gov

Register your interest in this technology online at

<http://technology.ssc.nasa.gov>